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ROBERT M. SHERMAN, EDITOR. PUBLISHED BI-WEEKLY BY ATOMIC ENERGY NEWS CO., 1000 SIXTH AVENUE, NEW YORK 18, N. Y.

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Dear Sir:

Today, the tenth anniversary of the first self-sustained nuclear chain reaction, is being celebrated by the University of Chicago. It was at Stagg Field, at that University, where, on Dec. 2nd, 1942, the historic experiment was successfully conducted. Some 42 scientists and technicians, who had worked on the project, under the direction of Enrico Fermi, were the audience at that time. Many of this group will be present again when the enlarged area, in which the first pile was built, is opened for the first time since 1941. Only one of the original team, Louis Slotin, is dead. He was the victim, in 1946, of a mishap at Los Alamos Laboratory, when a nuclear experiment he was performing caused fatal radiation injuries.

With establishment of the United States Civil Defense Council, at its founding session at Columbus, Ohio, last fortnight, George F. Arnold, Columbus civil defense administrator has been elected president. The new organization, whose active membership includes professional civil defense directors from what are considered key target areas across the country, was established at the end of a three-day conference in Columbus on the problems of protecting United States industrial centers from atomic and other air-delivered attacks. The council is designed to serve as a clearing house for its members, while advising Government agencies on methods for strengthening the nation's civil defense organization.

Eight fellowships in industrial medicine are now being offered by the USAEC for the 1953-54 academic year. Object of this fellowship program is to provide advanced training and on-the-job experience for men and women physicians in the field of industrial medicine, particularly in relation to the atomic energy industry. The fellowships are open to U.S. citizens with M.D. degrees who have had at least one year of internship. Inquiries concerning this program should be directed to Dr. Henry A. Blair, Atomic Energy Project, University of Rochester, Rochester, N.Y.

Discussions involving the immediate and longterm objectives of the Canadian and United Kingdom programs on the industrial application of atomic energy; of the economics of nuclear power production; and of the production of special materials required for these programs have recently been held in England between representatives of these two nations. The importance of these discussions was accented by the attendance at theme of those nations' leaders in the atomic field: Dr. C. J. Mackenzie, Dr. W. B. Lewis, and Mr. I.N. Mackay represented Canada, while the United Kingdom delegation was led by Lord Cherwell, L/Gen. Sir Frederick Morgan (Controller of Supplies, Atomic Energy), Sir John Cockcroft (Director of Atomic Energy Research Establishment), and Sir Christopher Hinton (Deputy Controller of Supplies, Atomic Energy).

The Radiological Society of North America, Inc., which will hold its 38th annual meeting in Cincinnati, Ohio, Dec.7-12, 1952, will devote a large part of its program to papers on the handling and utilization of radioisotopes.

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BUSINESS NEWS ...in the nuclear energy field...

ATOMIC BUSINESS ASSOCIATION SUGGESTED-Establishment of an atomic energy association by firms in the atomic energy program was suggested by T. Keith Glennan, former USAEC member, and president of Case Institute of Technology, who addressed the Manufacturing Chemists's Association in New York, last fortnight. The association he said, should embrace producers of raw material, such as uranium and thorium; those interested in distribution of end products; manufacturers of machinery to handle them; and private and public institutions in research and development. Those members qualified to make contact with the Commission, he stated, would have to be screened as carefully as the USAEC's employes, for their access to classified material. But he also proposed a secondary membership for those who would not need access to such classified material.

This association, Dr. Glennan urged, should be formed in time to be officially recognized and to be heard at the next session of Congress. He predicted that at this next session important amendments to the Atomic Energy Act would be proposed in the interest of wider use of its products in industry.

The association is needed to fill a void in present Government thinking, Dr. Glennan pointed out. Now, he said, the Commission hears amply from the military authorities on defense; from the general public through Congressional committees; and from the scientists through their recognized bodies. The broad purpose of the association, he stated, would be to foster and encourage, subject to requirements of national security, the development and utilization of the peaceful applications of atomic energy in accordance with the best traditions of the United States' system of free competitive enterprise.

NEW FIRM IN NUCLEAR SHIP PROPULSION PROGRAM-The Newport News Shipbuilding and Dry Dock Company will now participate in the work connected with the design and development of a nuclear propulsion plant suitable for a major warship, such as an aircraft carrier. In this task, the shipbuilding company will be a sub-contractor to the Westinghouse Electric Corp., which holds the prime contract with the USAEC for this project. This work is being done by Westinghouse under the direction of the USAEC's division of reactor development, and with the active participation of the Navy Department's Bureau of Ships.

SAVANNAH RIVER PLANT CLOSED FOR SECURITY- The 315-sq. mile Savannah River Plant of the USAEC (hydrogen bomb materials and other products) is now to be closed to those who do not have official business within the reservation. The closing of the boundaries, some two years after the announcement of the decision to erect the plant there (Nov. 28th, 1950), is an indication of the progress at this plant.

STAFF NAMED-Goodyear Atomic Corp., the wholly-owned subsidiary of Goodyear Tire & Rubber Co., which holds a prime USAEC contract to operate the new uranium-235 production plant now being erected in southern Ohio, has chosen Goodyear people to man key operating posts at the atomic plant. Albert J. Gracia will be manager; Oka Carlson will be superintendent of cascade operations; Jay B. Mitchelson will be superintendent of chemical operations; John R. Arndt will be superintendent of product plant operations; and Arthur H. Wernecke will be superintendent of uranium control.

ADVISORY COMMITTEE FOR NUCLEAR LABORATORIES-Walter Kidde Nuclear Laboratories, New York, the first privately financed research organization for the development of commercial and industrial nuclear power, has now set up an advisory committee to work with management on current problems. J. R. Oppenheimer, director of the Institute for Advanced Study, Princeton, N.J.; Alexander Sachs, investment consultant, New York; and Harold C. Urey, University of Chicago, Institute of Nuclear Studies, make up the advisory committee.

NEW GROUP SHOWS INTEREST IN POWER FROM NUCLEAR REACTORS-The Army's Corps of Engineers has now initiated a program to determine areas in which nuclear reactor-produced power would be useful, and to design reactors for meeting those needs. The Army is particularly interested in potential savings in fuel transportation costs obtainable by supplying electric energy from reactors to overseas forces during war or an emergency.

PRODUCTS, PROCESSES & INSTRUMENTS...for nuclear work...

FROM THE MANUFACTURERS--New battery operated regulated high voltage supply for use with Geiger tubes, proportional counters, scintillation counters, or any other low current device. The compact device is 2-in. x 2-in. x 4-in., and weighs 11-ounces. Output voltage is 900 volts regulated, positive or negative; maximum load is 20-microamps. The device is said to be able to replace three 300-volt batteries in survey meters.--Nucleonic Company of America, 497 Union St., Brooklyn 31, N.Y.-

Labeled steroid:progesterone 4-C-14. This is the latest addition to this manufacturer's growing list of available labeled steroids. This ring labeled compound is now available from stock in specific activities of 10-microcuries per milligram.--Radioactive Products, Inc., 443 W. Congress St., Detroit 26, Mich.

NEWS & NOTES:- The new firm, Detectolab, Inc., which has established itself at 6544 Sheridan Road, Chicago 26, is now offering for use in the nuclear energy field what it terms integrated counting systems. These consist of 15 electronic "building blocks" which the firm states may be used in combinations to form versatile instrument combinations. One fundamental unit, Detectolab states, will start the research worker on his program, and as he proceeds into other counting problems, he may add additional units. Supplementing these new electronic instruments are regularly used nuclear accessories, and the firm's "Detectrodes", the trade-name which it uses to describe its own counting tubes.

A continuous countercurrent extraction technique by which the rare earth elements may be separated from the non-rare earth impurities and fractionated into subgroups on an industrial scale has been developed by a research team at Argonne National Laboratory, Lemont, Ill. The large scale isolation of specific single rare earth elements in high purity also appears to be economically feasible as a result of this study. In the new method, a mixture of the rare earths is dissolved in nitric acid and placed in a separation flask which contains nitric acid and a solution of tributyl phosphate. The mixture is stirred for several minutes, after which it is allowed to separate into two quite distinct solutions. The organic phase of the mixture containing the tributyl phosphate and some of the rare earths rises to the top, while the aqueous phase containing nitric acid and the remainder of the rare earths moves to the bottom. This process is repeated many times in the eleven stage separation system. By controlling the strength of the nitric acid, the strength of the tributyl phosphate, and the ratio of the volume of nitric acid to the volume of the tributyl phosphate, it is possible to divide the rare earths into two groups with the split occurring at any predetermined point. With another division of the same type, it is possible to separate any rare earth element from all others in the group. The research team has been able to separate into two groups one-half pound of the rare earths per hour. It is believed that the equipment, if scaled up, could process several tons daily.

IONIZING RADIATION...investigations & notes...

Several chemical compounds which appear effective in counteracting damaging radioactive material which accumulates in bone have been investigated at the atomic energy projects, University of California, Los Angeles, N. S. MacDonald, in research studies with rats, found that ethylenediamine tetraacetic acid, casein hydrolysate, and pectin were effective in treating such accumulations of radioactive material. In addition, glucuronolactone, oxypolygelatin, and polyvinyl pyrrolidone showed some promise; further study will be done with this latter group. Since several pf the compounds are already under investigation for possible use as blood plasma substitutes, if proved successful for therapy of radioactive material in bone as well, they might have a dual function in the event of atomic warfare.

A series of two week courses in radiological health protection will be offered in Cincinnati, Ohio, starting Jan. 19, 1953, by the Public Health Service, at its Environmental Health Center there. Purpose is to assist health department employes and key personnel in other governmental or private organizations to achieve a working knowledge of hazards and problems connected with the use of x-rays, radioelements, neutron fluxes, and particle acclerators. Inquiries should be directed to the PHS, at 1014 Broadway, Cincinnati 2, Ohio.

RAW MATERIALS...radioactive minerals for nuclear work...

CANADA-Among those Canadian uranium mines which have reported on their progress, the Eagle Ace operation of Nesbitt LaBine Uranium Mines is termed "very encouraging" because of recently encountered visible pitchblende, according to the mine manager.....At Rix-Athabasca Uranium Mines, a second underground drill hole was said to have cut 35.6-ft. averaging 0.28% uranium oxide ($40.60) per ton). .....Assay results of 47-samples have been received at Strike Uranium Mines' head office. Covering eight zones, some of them show what the consulting engineers describe as sections of good grade over mining widths.....Because ice conditions on Lake Athabasca are not yet safe enough to permit transportation of equipment, drilling at Gunnar Mines has, temporarily, been held up. The head office is now awaiting results of a large number of chemical assays from the previous drilling and bulk sampling program, before giving any further grade estimates.....Pole Star Mines is now working on two uranium prospects, one in Southeastern Ontario, and the other in Northern Saskatchewan. According to a camp official, encouraging indications have been encountered on both groups.....St. Mary's Uranium Mines, Ltd., has been formed on a group of claims staked near Gunnar Mines' radioactive discovery in the Beaverlodge area, Lake Athabaska, Sask. The new company has announced that exploratory work is to start as soon as possible. This new property occupies the north half of Mitchell Island, in the St. Mary's Channel of Lake Athabaska, about 20-miles southwest of the main Eldorado camp, and about 2-miles from Gunnar's uranium prospect .....At Strike Uranium Mines, an oreshoot 90-ft. long, averaging 0.996% uranium oxide ($144.42 per ton) across an average width of 2.1-ft. is indicated in the first assay results from channel sampling at this company's property, it is reported..... Iso Uranium Mines has been incorporated to acquire a group of eight claims in the St. Mary's Channel sector of the Athabaska area, adjoining Gunnar's discovery group on the east. Preliminary surface exploration has revealed two radioactive zones, both containing visible pitchblende. Structural and geological conditions are described as similar to those on the adjoining Gunnar ground, where recent diamond drilling has intersected big widths containing appreciable amounts of uranium oxide .....Pole Star Mines are to investigate the uranium possibilities of the Hastings area; that company has now taken over some 1,800-acres there, formerly held by Faraday Uranium Mines. A work crew has already been despatched to the property, with expectations that diamond drilling will be under way within the next several weeks.

UNION OF SOUTH AFRICA-Thirteen gold mines in the Union are now participating in the program to recover uranium from gold slimes. The most recent group of eight, which came into the program, includes: Luipaardsvlei Estate & Gold Mining Co., Ltd.; Randfontein Estates Gold Mining Co. Witwatersrand, Ltd.; Virginia Orange Free State Gold Mining Co., Ltd.; Free State Geduld Mines, Ltd.; President Brand Gold Mining Co., Ltd.; President Steyn Gold Mining Co., Ltd.; Welkom Gold Mining Co., Ltd; Western Holdings, Ltd.

The original group of 5 in this program, which are already constructing necessary plants, are: Daggafontein Gold Mines; Blyvooruitzicht Gold Mines; Western Reefs Gold Mining Co.; Stilfontein Gold Mines, Ltd.; and West Rand Consolidated Gold Mining Co.

Three plants are to be built in the Free State gold fields, and a further two on the Rand. Plants in the Orange Free State will be built by the Virginia Gold Mining Co., Ltd., and the Anglo-American Corp. of South Africa, and plants on the Rand will be built by New Consolidated Gold Fields, Ltd., at Luipaardsvlei and by Randfontein Estates Gold Mining Co. (Pty), Ltd.

It was announced that the Free State plants would pay part of the uranium profits to the State. No such announcement was made in regard to the plants to be built on the Rand.

AUSTRALIA-The discovery of uranium in gold tailings in South Africa has induced Australian mining experts to conduct tests in local mines, to ascertain if Australian gold ores also contain the mineral. The Victorian Mines Department states all its own goldfields have been tested but with discouraging results. Radioactive minerals are widespread, but the quantities are too small to be important.

ATOMIC PATENT DIGEST...covering patents in the nuclear field...

A new group of patents, developed during the course of U.S. Government-sponsored nuclear research and development, has now been made available on a royalty-free(but non-exclusive) basis. Inquiries concerning this new group should be directed to Patent Branch, USAEC, Washington 25, D.C. This new group comprises:

(1) An improved process for selectively recovering silver by electrodeposition from an alkaline aqueous solution. U.S. Pat. No. 2,612,470

(2) A compensated thermocouple for measuring the temperature of a current carrying conductor. U. S. Pat. No. 2,612,779

(3) New and improved circuit for a vacuum tube voltmeter which can measure peak voltage of pulses having extremely short duration. U.S. Pat No. 2,613,235.

(4) An improved ultrasensitive electrometer system for measuring small direct voltages from sources of very high impedance. U.S. Pat. No. 2,613,236.

(5) An improved welding device for welding in an evacuated space by electron discharge between the parts to be welded. U. S. Pat. No. 2,613,305.

(6) An improved pocket-size radiation dosimeter of the electroscope type not subject to leakage of the charge. U. S. Pat. No. 2,613,237.

(7) An improved and simplified high voltage regulator. U. S. Pat. No. 2,613,344.

(8) Apparatus and method particularly useful for measuring the porosity of a substance. U. S. Pat. No. 2,613,531.

(9) Method for separating uranium from commonly associated impurities. U. S. Pat. No. 2,614,113.

(10) Apparatus for following the progress of a chemical reaction within a sealed reaction chamber. U. S. Pat. No. 2,614,645.

(11) Current measuring device particularly for measuring such minute electric currents as target current of an ion accelerator. U. S. Pat. No. 2,615,063.

(12) Synchro-cyclotron in which frequency modulation of resonant system depends directly upon the vacuum capacitor. U.S. Pat. No. 2,615,129.

(13) Apparatus and method for rapidly and accurately determining the components of a mixture by mass analysis. U.S. Pat. No. 2,615,135.

(14) Device for quickly and easily locating the point of detonation of an atomic bomb in the air. U. S. Pat. No. 2,616,249.

(15) Process for separation of cerium values from an aqueous solution containing cerium nitrate in tracer concentration. U. S. Pat. No. 2,615,798.

(16) Circuit and means useful in determining the time-delay of a time-delay relay. U. S. Pat. No. 2,615,967.

(17) An improved circuit and device useful in the stabilization and control of cyclotrons. U. S. Pat. No. 2,616,042.

(18) Method and apparatus for measuring fast neutron dosage absorbed by cell tissue in presence of gamma radiation. U.S. Pat. No. 2,616,052.

(19) Method and apparatus for measuring beam current in an apparatus such as a cyclotron. U. S. Pat. No. 2,616,053.

(20) Method of disposing of radioactive fission products in solution. U. S. Pat. No. 2,616,847.

(21) Improved coincidence circuit comprising a pair of photomultiplier tubes for impressing signals upon deflecting plates of cathode ray tube. U.S. Pat. No. 2,617,042.

(22) An improved radiation detector circuit. U. S. Pat. No. 2,617,946.

(23) Apparatus for supplying charge material to the evacuated interior of a mass spectrometer. U. S. Pat. No. 2,618,750.

(24) Fluid flow control system for automatically controlling the supply of a liquid medium to a cooling trap. U. S. Pat. No. 2,619,107.

(25) Circuit useful for automatically correcting the drift voltages in a direct current amplifier. U. S. Pat. No. 2,619,552.

Sincerely,

The Staff,
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